SEPTEMBER/OCTOBER 2006

Zoogoer

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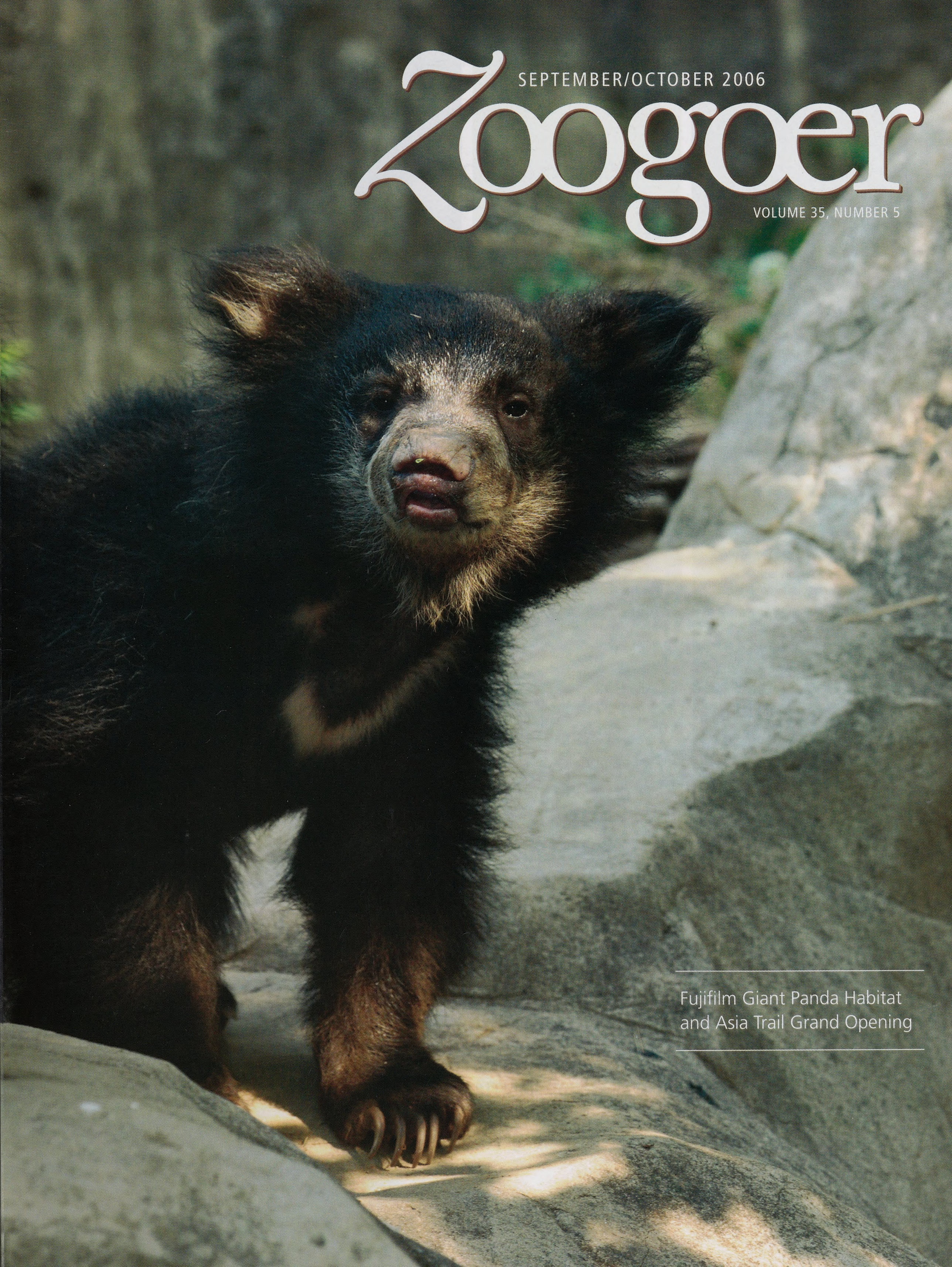

Fujifilm Giant Panda Habitat
and Asia Trail Grand Opening

FUJIFILM

FONZ
Friends of the National Zoo

Smithsonian National Zoological Park

Fujifilm, the Smithsonian's National Zoo and Friends of the National Zoo are working together to help protect giant pandas and secure their future through education and research.

Visit and enjoy giant pandas Mei Xiang, Tian Tian and Tai Shan at the Fujifilm Giant Panda Habitat as well as six other Asian species along Asia Trail.

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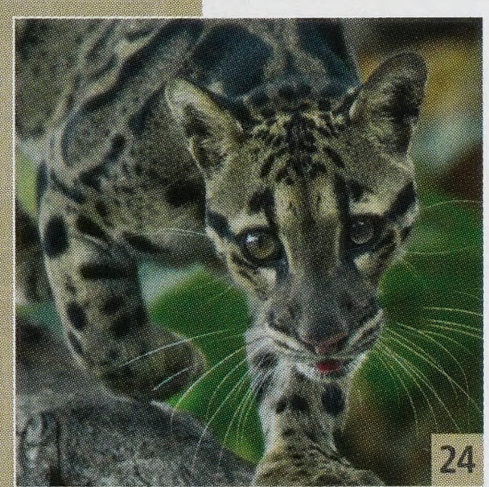
www.fujifilmusa.com/pandas

September/October 2006 | Volume 35, Number 5

All photos: Jessie Cohen/NZP



Fujifilm Giant Panda Habitat and Asia Trail

On September 20, the Smithsonian's National Zoo will unveil the new Fujifilm Giant Panda Habitat and Asia Trail. To celebrate the grand opening and help you plan your visit, *ZooGoer* presents a guided tour of all seven incredible animal habitats.

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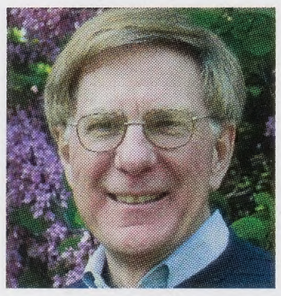

FONZForum

FONZ: Past and Future

As I write this, I've been Executive Director of FONZ for less than a month. Certainly not nearly long enough to master the workings of this complex organization, but long enough to be humbled by the accomplishments of my predecessors, and awed by the dedication of FONZ and Zoo staff and volunteers to animals, to conservation, and to sharing their knowledge and enthusiasm with others.

I've learned that many of you have been FONZ members for years, and are equally dedicated to advancing the mission of the Zoo. In the last year, however, we welcomed thousands of new members who may not be familiar with the history of FONZ.

FONZ was founded in 1958 by a small group of local citizens determined to fix the crumbling National Zoo. (A quote by Margaret Mead is apt: "Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.") From its founding in 1889, the National Zoo had never enjoyed robust funding, and its financial status was always precarious. The Zoo was administered by the Smithsonian Institution, but part of its budget came out of the District of Columbia's appropriation and part directly from the federal government; as a result, the Zoo was chronically short of funds. So the first change that those early Friends effected was to persuade Congress to fund the Zoo entirely under the Smithsonian umbrella—and to fund it generously. Next, they launched the first education and fundraising programs, initially staffed by volunteers; and gradually over the next years the organization grew, slowly adding members, volunteers, and staff to better help the Zoo. In 1975, FONZ was instrumental in helping the Zoo acquire its Conservation and Research Center (CRC) in Front Royal, Virginia, and in 2000 played a role in preventing CRC's closure.

Let me cite a few facts and figures that demonstrate FONZ's growth. Starting from a handful of volunteers who formed the first FONZ Board of Directors and four charter members, FONZ boasted about 55,000 members, 720 volunteers, and a professional staff of about 60 by the late 1980s. Today, nearly 111,000 people are FONZ members, 1,600 volunteers work at the Zoo, and the year-round staff has grown to 80. At its founding and for several years after, FONZ had essentially no revenues; in 1989, gross revenues were $7.5 million and this year we're on track to reach $15 million. Most important, initially FONZ offered only moral support to the Zoo. By 1989, FONZ was contributing about $1.8 million in cash and in-kind support, and in 2005, our support for the Zoo reached $8 million.

Using 1989 as a benchmark is no accident. Jim Schroeder, whom I succeed as FONZ Executive Director, joined the FONZ staff in 1989, as Deputy to Clint Fields, who became Executive Director the year before. These two remarkable individuals led FONZ's phenomenal growth from then to now and built a talented staff, 15 of whom have been here since Clint arrived in 1988.

When you visit Asia Trail in the weeks ahead, you will be able to explore the Clint Fields Conservation Plaza, an interactive center for learning about giant panda conservation, named in recognition of Clint's achievements. When Elephant Trails opens in 2011, Schroeder's Crater, a huge sand bath for Asian elephants, will recognize Jim's.

I have big boots to fill in replacing Clint and Jim, and look forward to the challenge of leading FONZ to still greater heights. Zoo Director John Berry has set as his goal that the National Zoo will be the finest zoo in the world by 2016. In parallel, I have set as my goal that FONZ will be the best zoo support organization in the world by the same date. Further, I have pledged to the FONZ Board of Directors, to the Zoo staff, to the FONZ staff and volunteers, and now to you that we will be firmly on course to reaching this goal by 2008, when FONZ celebrates its 50th anniversary.

The new Fujifilm Giant Panda Habitat and Asia Trail are a testament to what we can achieve when the Zoo and FONZ, along with our members and corporate partners, work together with a common vision. With your continued support, there will many more such achievements in the years ahead.

Sincerely,

Bob Lamb

Bob Lamb
Executive Director

FONZ Friends of the National Zoo is a nonprofit organization dedicated to supporting the conservation, education, and research efforts of the Smithsonian's National Zoo. Formed in 1958, FONZ was one of the first conservation organizations in the nation's capital. Friends of the National Zoo is dedicated to supporting the National Zoo in a joint mission to study, celebrate, and protect the diversity of animals and their habitats.

ZooGoer [ISSN 0163-416X] is published bimonthly by Friends of the National Zoo (offices located at the Smithsonian's National Zoological Park, 3001 Connecticut Ave., N.W., Washington, D.C., 20008-2537) to promote its aims and programs, and to provide information about FONZ activities to its members, volunteers, and others interested in the purposes of FONZ. Periodicals postage paid at Washington, D.C. Postmaster: Send change of address to *ZooGoer*, 3001 Connecticut Ave., N.W., Washington, D.C., 20008-2537. Copyright ©2006. All rights reserved.

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Membership in FONZ offers many benefits: programs, publications, discounts on shopping and events, free parking, and invitations to special programs and activities to make zoogoing more enjoyable and educational. To join, write FONZ Membership, National Zoological Park, 3001 Connecticut Ave., N.W., Washington, D.C., 20008-2537, call 202.633.3034, or go to www.fonz.org.

Membership categories and annual tax-deductible dues are:

Household	$55
Young Professional	$40
Individual	$40
Senior	$35
Contributing	$100
Sustaining	$150
Patron	$250
Sponsor	$500
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($8 of membership dues goes to a *ZooGoer* subscription)

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An audio version of *ZooGoer* is available on our website, for members who cannot read standard print due to disability. For more information, please visit **www.fonz.org/zoogoer.htm**.

On the cover: Sloth bear cub Balawat and his parents have a new home on Asia Trail at the Smithsonian's National Zoo. Photo by Jessie Cohen/NZP.

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The Smithsonian's National Zoo is accredited by the Association of Zoos and Aquariums.

Letter from the **Zoo Director**

A Grand Opening: Fujifilm Giant Panda Habitat and Asia Trail

Since I came to the Smithsonian's National Zoo last fall, I have looked out my office window at a seemingly chaotic construction site and struggled to picture what would emerge. Now, finally, I can see the shape of Asia Trail—and it is spectacular! Covering nearly six acres, this new series of habitats represents the completion of the first phase of the Zoo's revitalization, the beginning of our efforts to become the world's finest zoo by 2016.

The Fujifilm Giant Panda Habitat is the gateway to Asia Trail, home to six other threatened or endangered Asian species: sloth bears, red pandas, fishing cats, clouded leopards, Asian small-clawed otters, and Japanese giant salamanders. In fact, the concept of Asia Trail emerged after Fujifilm generously agreed to fund the expansion of our giant pandas' space at the Zoo. Fujifilm's commitment helped encourage the U.S. Congress to support the creation of the rest of Asia Trail. So, the grand opening of the Fujifilm Giant Panda Habitat and Asia Trail on September 20 is the result of a unique public/private partnership strongly committed to conservation education.

As the Zoo's lead corporate sponsor and its partner in conservation, Fujifilm has contributed much more than funds for the bricks and mortar of the Giant Panda Habitat. Fujifilm's support helped bring Mei Xiang and Tian Tian to the Zoo in 2000. It helped our scientists to conduct the scientific research that led to Tai Shan's birth. Fujifilm has provided our staff, working in the Zoo and in the field, with the digital cameras they need to document their work and share it with the public through compelling images. It enabled us to create a comprehensive education program, including the award-winning Conservation Central Web-based curriculum, to raise public awareness of giant panda conservation. And it has supported the creation of an online virtual tour of Asia Trail, as well as a downloadable audio tour, so people around the world who cannot visit in person can still experience this new exhibit.

Fujifilm has also supported the Zoo beyond giant panda programs, a testament to this corporation's commitment to conservation. In 2005, Fujifilm Medical Systems donated a state-of-the-art digital x-ray system that enables Zoo veterinarians to diagnose animal health problems more quickly and accurately than with conventional film-based x-ray systems. The new equipment makes examinations much quicker and easier for the Zoo's animals by producing digital images that can be manipulated to show both bone and soft tissue and to reveal injuries that may not have appeared on a film x-ray. Thanks to Fujifilm's generosity, the National Zoo is one of the first zoos in the country to employ this technology.

This month, we are also announcing the creation of the Fujifilm Curatorial Residency in Animal Care. The Curatorial Residency is designed to encourage and prepare a postdoctoral student for a professional career in animal care and management in a zoo setting. Curators are key to creating, managing, and sustaining the healthy zoo animal populations that are so critical to the conservation of giant pandas and other endangered species, including those on Asia Trail. This new program will fill a gap in training opportunities for potential zoo scientists, complementing our existing veterinary and pathology residencies and postdoctoral fellowships in conservation and science.

As you will read in this issue of *ZooGoer*—and see for yourself on your next Zoo visit—Asia Trail offers its wild inhabitats wonderful new habitats designed to support their unique adaptations and reveal them to visitors at the same time. The red pandas' habitat, for instance, boasts the tall trees these animals like to live in and offers visitors eye-level views into those trees. The giant pandas' habitat features the cool rocks that these cold-adapted bears need to keep from overheating and invites visitors to sit on the same cool rocks just a glass pane away from the pandas. At the same time, Asia Trail immerses visitors in the real-life stories of the National Zoo scientists and their colleagues who are working to save these animals from extinction. What's more, visitors to Asia Trail will get a feel for Asia when they see plants, animal sign, art, and artifacts typical of parts of that vast continent.

I am immensely proud of the effort each and every one of the staff of the Zoo, FONZ, and the Smithsonian's Office of Facilities and Engineering has put into making the Fujifilm Giant Panda Habitat and Asia Trail such a grand achievement. And I am immensely grateful to the Congress, the Administration, Fujifilm, Animal Planet, FedEx Corporation, Ruth and Bill Holmberg, Alice B. Marriott Lifetime Trust, J. Willard & Alice S. Marriott Foundation, Roger and Vicki Sant, Freed Foundation, Mr. and Mrs. John Mars, and other donors, and to the volunteers and members of FONZ whose contributions make so much of what we do possible.

Please join me at the grand opening on September 20. I guarantee your experience at the Fujifilm Giant Panda Habitat and Asia Trail will be amazing.

Sincerely,

John Berry

John Berry
Director
Smithsonian's National Zoological Park

Notes&News

Jessie Cohen/NZP

A Vietnamese mossy frog hangs out at the Reptile Discovery Center, which now features new interpretive graphics.

Animal News

At the Reptile Discovery Center, beautiful **Vietnamese mossy frogs** (*Theloderma corticale*) show off their talent for blending into the background. Thanks to a riot of green and reddish-brown tubercles protruding from their skin, the frogs bear an uncanny resemblance to the moss that grows on the banks of rivers and streams in their native habitat in Vietnam. With such convincing cryptic camouflage—even their eyes look like moss—the frogs can hide in plain sight from predators.

Ann Batdorf/NZP

Giant anteater.

The popular statue of a **giant anteater** (*Myrmecophaga tridactyla*) that stands in front of the Small Mammal House now has some stiff competition: A pair of real giant anteaters went on exhibit in July in an enclosure next to Lemur Island. These shaggy natives of Central and South America can be nearly four feet long, not including their bushy tails. They use the claws on their forefeet to dig into ant and termite mounds, then slurp up eggs, larvae, and adult insects with their two-foot-long, sticky tongues.

Smithsonian's National Zoo Director John Berry unveiled plans for an innovative new habitat for the Zoo's **Asian elephants** (*Elephas maximus*), Kandula, Shanthi, and Ambika, on June 20. Elephant Trails will feature a large indoor community center where a herd of elephants can gather and an outdoor walking path with abundant forage and room to roam. National Zoo scientists will use the state-of-the-art habitat to continue important research and breeding programs that help save Asian elephants from extinction. To learn more about Elephant Trails or to donate, please visit **www.fonz.org/elephanttrails.htm**.

Get the scoop on Zoo scientists' latest groundbreaking discoveries at **www.fonz.org/science.htm**.

Events

Clouded Leopard Fundraiser

September 14—6 to 9 p.m.

Don't miss this chance to tour Asia Trail before it opens to the public and help the Zoo study and protect clouded leopards. At a cocktail and hors d'oeuvres reception, Zoo reproduction scientist JoGayle Howard will explain how National Zoo scientists are improving clouded leopard breeding success and working to determine the status of wild populations. Tickets are $250 for FONZ members and $300 for nonmembers. For more information or to register, visit **www.fonz.org/cloudedleopards.htm** or call 202.633.3033.

Fiesta Musical

September 17—11 a.m. to 5 p.m.

FONZ celebrates Hispanic Heritage Month with an annual Fiesta at the National Zoo. Highlights include keeper talks and animal encounters, live music, costumed dancers, traditional crafts, and Latin American foods. Free and open to the public. For more information, visit **www.fonz.org/fiesta.htm**.

Fujifilm Giant Panda Habitat and Asia Trail Opening

September 20, 23, and 24

Celebrate with us as we open the Fujifilm Giant Panda Habitat and Asia Trail to the public for the very first time! On September 20, the festivities begin at 9:30 a.m. with remarks and a children's processional. National Zoo experts will be available along the trail to chat until 12 p.m. On September 23 and 24, there will be talks by Zoo keepers and scientists, animal encounters and feedings, and other special activities from 10 a.m. to 4 p.m. Admission is free.

Autumn Conservation Festival

October 7 and 8—10 a.m. to 3 p.m.

The Zoo's Conservation and Research Center (CRC) in Front Royal, Virginia, invites you for a once-a-year, behind-the-scenes look at its endangered species conservation and science programs. Your whole family will enjoy fun activities, interactive exhibits, guided tours of animal facilities, and live music. Lunch and beverages will be sold on the grounds. The event will go on rain or shine. Parking passes are required and may be obtained at **www.fonz.org/acf.htm** or at the event.

Boo at the Zoo

October 27, 28, and 29—5:30 to 8:30 p.m.

Bring your little monsters to Boo at the Zoo for a night filled with trick-or-treating, animal encounters, keeper talks, festive decorations, and not-too-scary haunted trails. It's the wildest Halloween party in town! For more information or to purchase tickets for this very popular event, visit **www.fonz.org/boo.htm**.

Lectures

All lectures at the National Zoo are free and open to the public. For more information and to RSVP, visit **www.fonz.org/lectures.htm**.

Conservation in Asia Today

September 21—7:30 p.m.

As part of the festivities around the opening of Asia Trail, Jeffrey McNeely, the chief scientist at the World Conservation Union in Switzerland, will talk about conservation efforts in Asia today. McNeely has worked throughout Asia to further conservation. He is author or editor of more than 30 books, and has published 200 technical and popular articles on a wide range of conservation issues, seeking to link conservation of natural resources to the maintenance of cultural diversity and to economically sustainable ways of life.

Magnificent Cranes

October 5—7:30 p.m.

Ryan Hagerty/USFWS

The inspirational leadership of George W. Archibald, winner of the 2006 Indianapolis Prize and cofounder of the International Crane Foundation, has given flight to the hope for preserving cranes worldwide. In this lecture, sponsored by the Heritage Group, he will talk about his experiences in more than 30 years of conserving cranes and the ecosystems on which they depend.

Correction: The "Grasslands on a Grand Scale" story in the July/August 2006 issue implied that the Kansas Audubon Society is working on a grasslands reserve near Bassett, Kansas. The reserve is near Bassett, Nebraska.

Volunteer Corner

by Molly Woods

Ann Batdorf/NZP

Asia Trail volunteer interpreters learn about giant pandas and six other species.

The opening of Asia Trail brings new experiences for Zoo visitors and for some volunteers as well. In addition to the black-and-white bears they already know and love, giant panda interpreters are learning about the six other species on Asia Trail, says Jenny Sullivan, who began volunteering as a giant panda interpreter about a year ago. She also notes that the new exhibit is "modern and state-of-the-art," designed to give the animals a stimulating habitat and visitors a better view.

Pat Purcell has been a giant panda interpreter since the program began in 2000. She says Asia Trail does a lot to help visitors understand what it means to save a large habitat. "It's easy to love a panda, but it's not so easy to love a bamboo rat. But if you save the habitat for a panda, you're also saving the habitat for other animals."

For more information on volunteering at the National Zoo, visit **www.fonz.org/volunteer.htm** or call 202.633.3025.

Get to Know Asia Trail

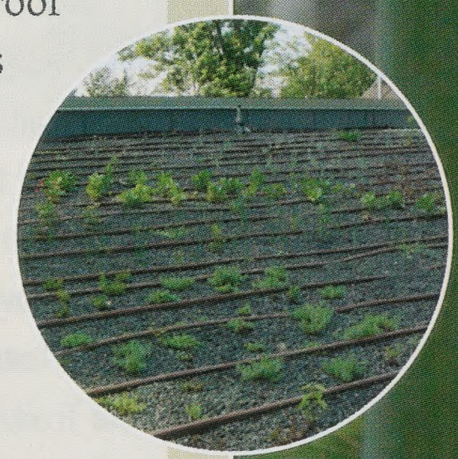
Asia Trail covers nearly six acres of the National Zoo.

The pathway through the trail is a little over a quarter of a mile long, including both the lower loop and the upper walkway.

More than 275 craft and construction workers built Asia Trail.

It took 8,033 cubic yards of concrete, about 3,050 square feet of glass, and more than 400 tons of steel rebar to build Asia Trail.

Asia Trial was built with environmentally friendly, "green" elements. The walkway, for example, is made with tree resins instead of petroleum, and a plant-covered roof at the sloth bear habitat (pictured, lower right) provides insulation and produces oxygen.



Asia Trail took two and a half years and cost $52.7 million to build. Private donations of more than $24 million, including broad support from FONZ members, helped fund Asia Trail and associated conservation programs. Lead corporate sponsor Fujifilm and exclusive media sponsor Animal Planet supported the National Zoo with donations of $9.1 million and $5 million, respectively.

Sixty FONZ volunteers serve as exhibit interpreters on Asia Trail.

All photos: Jessie Cohen/NZP

Welcome to the Fujifilm Giant Panda Habitat and Asia Trail

On September 20, the Smithsonian's National Zoo will unveil the Fujifilm Giant Panda Habitat and Asia Trail, a brand-new series of exhibits set among waterfalls, rocky outcrops, and bamboo groves. More than just a showcase for seven fascinating species, Asia Trail is an immersive experience filled with the sights and sounds of the world's largest continent, and an inspiring call for conservation.

Few people have the good fortune to see giant pandas, Japanese giant salamanders, red pandas, Asian small-clawed otters, fishing cats, clouded leopards, or sloth bears in the wild, in part because human activities threaten these animals' very existence. But Asia Trail and the newly expanded, state-of-the-art Fujifilm Giant Panda Habitat bring people in close proximity, and in many cases eye to eye, with them all. Watching a giant panda loll within arm's reach or nearly touching noses with a sloth bear presents a rare opportunity for visitors to discover how little separates *Homo sapiens* from their fellow species.

Asia Trail also provides new perspectives on the triumphs and challenges of conservation in Asia. Exhibits show how sustainable agricultural practices, such as beekeeping and mushroom farming, alternative fuel options such as biogas stoves, and conservation education programs that provide jobs for women are improving the lives of villagers and wildlife in Asia.

Yet, while conservation often benefits people and animals, conflicts of interest sometimes arise. Decision Stations in both of Asia Trail's conservation plazas use interactive, touch-screen displays to show real conservation conflicts in China and India, and ask you to make some tough decisions to resolve them.

National Zoo scientists face similar challenges as they help conserve Asian wildlife and habitats. Some work in Asia alongside colleagues and local people, and anecdotes and artifacts from their expeditions are on display at both conservation plazas. Others work at the Zoo, pioneering reproductive technology to safeguard several of Asia Trail's species, including giant pandas, from extinction. At the Fujifilm Giant Panda Habitat, engaging photographs tell the story of how these scientists brought giant panda cub Tai Shan into the world.

On the following pages, *ZooGoer* presents a guided tour of Asia Trail. Enjoy your visit, and many happy returns.

Illustrations by Bob Hynes

LOWER LOOP

1. Original Giant Panda Yards
2. Clint Fields Conservation Plaza
   Learn about the mountainous land where giant pandas live, the ways Chinese villagers practice conservation, and the tools our scientists use to help giant pandas in zoos and in the wild.
3. New Giant Panda Yards
4. Giant Panda Experience Zone
   Cool off alongside our giant pandas by sitting on a chilled rock, standing under our fog misters, or nestling into a giant panda den.
5. Inside the Fujifilm Giant Panda Habitat
   See the story of giant pandas at the National Zoo, and play the Mating Game.

UPPER WALKWAY

See giant and red pandas from above, investigate Wild Signs, and visit Asian small-clawed otters, fishing cats, clouded leopards, and sloth bears.

6. Wild Signs
   Look for signs of animal activity along the trail—paw prints, bird and monkey calls, and more.
7. Camera Trap
   Trip our secret sensor and see your surprised photo. It's the same way our scientists study animals in the wild.
8. Sloth Bear Conservation Plaza
   Visit a village in India to learn about conservation—from a hands-on topographic map of sloth bear terrain to an interactive game that asks you to make tough conservation choices.
9. Sloth Bear Amphitheater
   Have a seat and watch as our sloth bears suck up snacks from this interactive feeding zone.

Clouded leopards

Sloth bears

Asian small-clawed otters

Fishing cats

7

8

9

C

TED WALK

CONNECTICUT AVENUE

VISITOR CENTER

LEGEND

Lower Loop

Upper Walkway

Curiosity Station
Use touch screens to create your very own, personalized Asia Trail website so you can learn more about our animals and Asia Trail at home.

Photo Stops Sponsored by Fujifilm
These are great spots to take photos on your Asia Trail adventure.

Note: ZooGoer's tour of Asia Trail begins at the Fujifilm Giant Panda Habitat entrance just off Olmsted Walk, next to the Elephant House. You may also enter Asia Trail near the Sloth Bear Curiosity Station or, if you are approaching from the Bird House, cross the bridge and enter Asia Trail at the upper walkway of the Fujifilm Giant Panda Habitat.

FUJIFILM
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Animal Planet
Exclusive Media Sponsor

Ann Batdorf/NZP

Fujifilm Giant Panda Habitat

The expanded Fujifilm Giant Panda Habitat provides two new outdoor areas and more than 10,000 square feet of indoor space for giant pandas (*Ailuropoda melanoleuca*) Mei Xiang, Tian Tian, and their one-year-old cub, Tai Shan. It also gives visitors plenty of chances for up-close encounters with the pandas, plus a comprehensive look at giant panda conservation and the progress Zoo scientists are making to save these endangered bears.

From Olmsted Walk, enter the Fujifilm Giant Panda Habitat next to the outdoor giraffe and elephant habitats. Asia Trail forks here, so you have two options: Start with the upper walkway, which grants sweeping views of the giant pandas' outdoor yards from above and continues all the way to the end of the trail, or take the lower loop, which allows for more intimate visits with the giant pandas.

We begin with the lower loop, which descends gently to bring you to the two original giant panda yards. Mei Xiang and Tian Tian have used these yards since their debut at the National Zoo in 2001, and Tai Shan first encountered the outdoors and learned to climb trees here. If he's outside, you can stop to watch him playing with his ball or pestering Mei Xiang to wrestle with him before you continue.

As you reach the end of the original yards, you will come to a small crossroads. A short pathway on your right, lined with glass walls, takes you between an original yard and a new one. If you're lucky, you could find yourself face to face with a giant panda on the other side of the glass! The pathway to your left leads to the Clint Fields Conservation Plaza. Named for a former Executive Director of FONZ, the plaza tells the stories of National Zoo scientists, Chinese villagers, and park rangers who are working to save giant pandas and other Asian wildlife.

Inside the conservation plaza, a large-scale topographic map of the mountains of central China gives you the lay of the land of giant pandas and lights up to show where conservation is

continued on page 15

Get to Know Giant Pandas

There are an estimated 1,600 giant pandas left in the wild in isolated populations in China, and about 190 in zoos around the world. The World Conservation Union (IUCN) lists them as endangered on its Red List.

China designated giant pandas as a national treasure in the 1960s and has prohibited the killing of giant pandas for decades. Habitat destruction was the primary reason for the decline, and continues to be a threat.

The first time a Westerner saw a giant panda alive was in 1916.

Giant pandas spend up to 16 hours a day munching on bamboo.

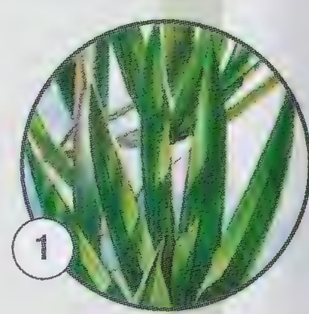
The word "panda" comes from the Nepalese name for the red panda, *nigalya ponya*, meaning "eater of bamboo." Even though they share the same name, giant pandas are bears, and red pandas are probably most closely related to raccoons, skunks, or weasels.

Ann Batdorf/NZP

Tai Shan climbs and capers at the Fujifilm Giant Panda Habitat.

Do You Know Your Bamboo?

Bamboo grows on every continent except Antarctica, and more than half of the world's 1,000 or so species grow in Southeast Asia. People make furniture, boats, and musical instruments out of bamboo, and use it as a decorative plant in their gardens. Giant pandas and red pandas eat it, some birds nest in it, and one species of bat even lives in the hollow space inside the stalks.



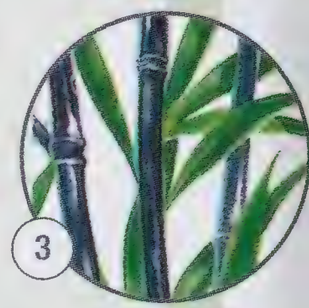
HERE ARE SOME BAMBOO SPECIES TO LOOK FOR AS YOU WALK ALONG ASIA TRAIL.

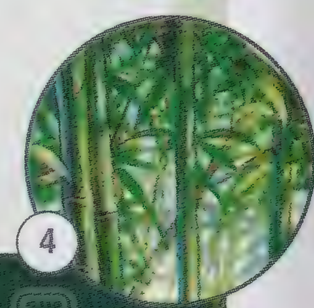
(1) Arrow bamboo (*Pseudosasa japonica*) is native to Korea and Japan, and got its name because Japanese archers in medieval times used its long, straight stalks to make arrows. In a taste test, the pandas at the Fujifilm Giant Panda Habitat preferred to eat arrow bamboo over other species.

(2) Yellow groove bamboo (*Phyllostachys aureosulcata*) comes from China. Its green stalks, which sometimes grow in a zigzag pattern, have yellow grooves on the sides of their segments.

(3) Black bamboo (*Phyllostachys nigra*) stalks are pale green when they're young, but soon develop tiny black spots. After about six months to a year, the stalks turn completely black and glossy.

(4) Bissetii bamboo (*Phyllostachys bissetii*) comes from China and keeps some of its leaves all year, even in the winter. It is one of the first bamboos to grow new shoots in the spring.





taking place. Also in the plaza, interactive touch-screen kiosks called Decision Stations show videotaped interviews with people in China, then ask you to resolve challenging conservation issues. Other exhibits highlight alternative economic activities such as ecotourism, beekeeping, and mushroom farming that Chinese villagers are using to make a living instead of logging or foraging in protected reserves. And inspiring quotes and anecdotes from National Zoo scientists working in Asia are on display, alongside real tools they have used on their research expeditions.

When you've finished exploring the conservation plaza, reenter the lower loop and continue to the first of the new outdoor yards. Designed to satisfy the pandas' every need and whim, the new yards contain amenities such as water-cooled grottos and fog systems based on studies of the giant pandas' preferences. The new yards also mimic features of giant pandas' native habitat in the misty mountains of China, including waterfalls and rocky outcrops. With their naturalistic design, abundant room to play and relax, and tailor-made extras, these yards encourage the pandas to feel at home and act naturally. And because nothing more than a few inches of glass separates you from the pandas, you'll get a front-row view of their antics.

At the first new outdoor yard, stop to investigate the Giant Panda Experience Zone. Here, you'll learn what it feels like to live in the Fujifilm Giant Panda Habitat by trying out some of the same amenities the pandas enjoy. On steamy days, chill out on a cooled rock or get wet in a fog zone similar to the one the pandas use to beat the heat. If you're feeling shy, nestle into a rocky grotto just like pandas do when they need privacy or shelter from the sun and rain. Then, move on to marvel at the Japanese giant salamanders (see pages 16 and 17 for details) before exploring the second new outdoor giant panda yard.

Next, the lower loop winds past the red panda habitat (see pages 18 and 19 for details) and into the indoor portion of the Fujifilm Giant Panda Habitat. Inside, incredible photographs tell the story of giant pandas at the National Zoo, from the events leading up to the arrival of Hsing-Hsing and Ling-Ling in 1972 to the 2005 birth of cub Tai Shan. And he's just the beginning of a future bright with possibilities for new generations of giant panda cubs. In preparation for that future, the Fujifilm Giant Panda Habitat contains a cozy cubbing den for Mei Xiang to give birth and raise her young.

Without the tremendous efforts of Zoo scientists, who study giant panda behavior and continue to pioneer reproductive technologies such as artificial insemination and hormone monitoring, Tai Shan would never have been born. The Fujifilm Giant Panda Habitat tells their story too, with fun interactive exhibits such as the Panda Mating Game. Be sure to peek into the research room, where Zoo staff and volunteers watch the giant pandas on video monitors and take detailed notes so that Zoo scientists can learn more about giant panda behavior.

Perhaps no one at the Fujifilm Giant Panda Habitat knows the intimate details of the Zoo pandas' behaviors better than the people who care for them every day: their keepers. In taped interviews broadcast on video monitors, keepers talk about the rewards and challenges of their jobs. Be sure to check out the bite-covered challenge crate and other objects the keepers use to keep the pandas' minds and bodies active.

Now that you've seen everything the Fujifilm Giant Panda Habitat has to offer, you're ready to explore the rest of Asia Trail. When you exit the indoor habitat, return to the Asia Trail entrance and follow the upper walkway, which begins with a view of the giant panda yards from above.

Ann Batdorf/NZP

Tian Tian enjoys a frozen treat on a hot day.

Japanese Giant Salamanders *Andrias japonicus*

Just beyond the Clint Fields Conservation Plaza on the lower loop, look for a large glass aquarium set into the rocks on your left. What lurks within may look ugly or even scary, but have no fear—it's a Japanese giant salamander, and it's harmless to humans.

When you think of a salamander, you probably picture a small animal about the size of a human finger. But the Japanese giant salamander lives up to its name, growing nearly five feet long and weighing about 55 pounds as an adult.

By day, this slimy predator hides in small caves or underneath large rocks, but at night, it plunges into the cold water of a swift-moving mountain stream to catch some dinner. It has tiny eyes and fairly poor vision, so it relies on vibrations in the water, touch, and smell to locate prey. It eats anything, from invertebrates such as worms to fish, other salamanders, and even mice.

Amphibians are among the first species to suffer harm when people disturb or destroy their habitats, which warns scientists that other animals might be affected, too. Japanese giant salamanders have no natural predators, but pollution and erosion are fouling their water, and their population declines indicate that their habitat needs protection before it's too late.

Get to Know Giant Salamanders

The IUCN lists Japanese giant salamanders as near-threatened.

Japanese giant salamanders live in cold mountain streams and rivers on Kyushu Island and western Honshu in Japan.

Japanese giant salamanders and Chinese giant salamanders are the two largest salamanders in the world. Hellbenders (*Cryptobranchus alleganiensis*) have the largest body mass of all the salamanders in North America.

Mucus covers the bodies of giant salamanders and protects them from abrasions and parasites. When disturbed, the salamanders can also produce a smelly, sticky secretion.

A giant salamander absorbs oxygen through its skin. Loose folds of skin along its sides increase surface area to help it absorb even more oxygen.

Giant salamanders have sensory organs along their bodies and on their heads that can detect other animals in the water around them, which helps them hunt. Sharks have similar organs.

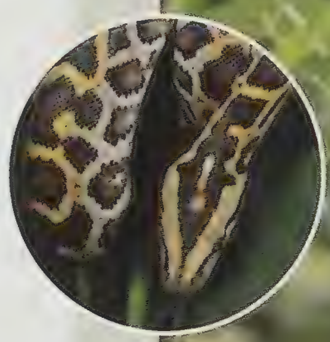
Giant salamanders' broad, flattened bodies are streamlined for swimming at the bottom of fast-moving water.

Jessie Cohen/NZP

Wild Signs

Can you read the signs? As you travel between the red panda and fishing cat habitats on the upper walkway, look and listen for clues that something—or someone—has been there before you.

HERE ARE HINTS ABOUT A FEW OF THE WILD SIGNS TO GET YOU GUESSING.



Sssomebody's shed his skin. Who is it?
Hint: He's a scaly predator from India that strangles his prey.

These paw prints are a sure sign that a big cat hunts here. Who is it?
Hint: Her stripes keep her hidden as she stalks her prey through tall grasses.

A camera trap caught this person on protected land. Who is it?
Hint: He catches animals for their pelts and sells them for food and as ingredients in traditional medicines.

Visit Asia Trail to see if you guessed right!

From top: Bruce Coleman Inc./Gail M. Shumway, Jessie Cohen/NZP, courtesy of JoGayle Howard

Red Pandas *Ailurus fulgens*

Decisions, decisions. In their Asia Trail habitat, red pandas can snooze on cool rocks or play in the trees, depending on the temperature and their temperament. And you've got choices, too: You can observe the red pandas at ground level on the lower loop, or get a bird's-eye view of them from the upper walkway. But your best bet is to check out these active animals from both angles.

Red pandas live in mid-elevation forests in the Himalayas, so exhibit designers surrounded the trees in their Asia Trail habitat with rugged rock walls for a natural mountainous feel. Two females currently live in the habitat, but in the future, pairs may raise young in nest boxes built into the rocks' craggy recesses. The nest boxes can be cooled or heated as necessary, and tiny cameras mounted inside them will capture the red pandas' behavior so National Zoo scientists can learn more about them.

Since 1972, National Zoo scientists have been studying and breeding red pandas. Now they're working with colleagues in India to reintroduce zoo-born red pandas to the wild. One of these colleagues is Sunita Pradhan, who with her assistants released two of the Darjeeling Zoo's red pandas in Singhalila National Park. See a slideshow narrated by Sunita with beautiful photographs of the release at the Look Station, which is similar to a Viewmaster, on the red panda portion of the upper walkway.

Get to Know Red Pandas

There are fewer than 2,500 adult red pandas alive today, and the IUCN lists them as endangered. They are hunted for their beautiful fur and are rapidly losing habitat to human development.

Like giant pandas, red pandas have a small, bony projection on each wrist that helps them grip bamboo.

Red pandas' red-and-white markings blend in with the red mosses and white lichens of their native habitat in the Himalayas.

It gets pretty cold in mountain forests where red pandas live. To stay warm, they cover themselves with their bushy tails, and are so furry that they even have hair on the soles of their feet.

Red pandas spend as many as 13 hours a day searching for and eating bamboo. Finicky eaters, they select only the tenderest young bamboo leaves and shoots, and chew them very thoroughly to aid digestion.

Scientists working at the National Zoo found that red pandas compensate for the low energy content of their bamboo diet by having extraordinarily low metabolic rates, and expend almost as little energy as sloths.

Red pandas communicate with head bobs, tail arching, and vocalizations.

Jessie Cohen/NZP

Asian Small-clawed Otters *Amblonyx cinerea*

Asia Trail's otters make playing a major priority. In their new habitat, which is one of the largest for Asian small-clawed otters in the United States, they splash around in a waterfall, dive and swim in a glass-fronted pool, and catch some rays on the banks of a stream. As they frolic, listen for the dozen or more different vocalizations they use to communicate with each other.

It's not all fun and games for Asia Trail's six male otters, though: They've got some learning to do in the habitat's Otter Training Station. Watch as Zoo scientists and keepers teach them to present their feet, open their mouths, and hold still for veterinary exams, just like the giant pandas at the Fujifilm Giant Panda Habitat.

In south Asia's coastal waters, estuaries, and creeks, Asian small-clawed otters live in family groups consisting of one breeding pair and its offspring. All the family members help raise the breeding pair's young pups, which are born helpless and are blind for the first 40 days of their lives. The National Zoo hopes to breed Asian small-clawed otters in the future, so that a family group can live on Asia Trail.

Get to Know Asian Small-clawed Otters

The IUCN lists Asian small-clawed otters as near-threatened due to rapid habitat destruction and pollution.

Asian small-clawed otters are the smallest of the world's 13 otter species.

With the stiff whiskers on their snouts, Asian small-clawed otters can detect the movement of prey in the water, which helps them hunt in murky conditions.

The partial webbing on the paws of Asian small-clawed otters makes them agile swimmers and also gives them better manual dexterity than otters with fully webbed paws. While some otters catch prey with their mouths, Asian small-clawed otters grab invertebrates, fish, frogs, and snakes with their forepaws.

Asian small-clawed otters have large, broad teeth for cracking open the shells of mollusks and crabs. Sometimes, they put shellfish on rocks and wait for the heat of the sun to open the shells, then devour what's inside.

A layer of waterproof fur insulates Asian small-clawed otters from cold water and keeps an inner layer of their fur dry.

Asian small-clawed otters sometimes play a game of "fetch" with themselves, throwing pebbles into the water and diving in to retrieve them before they sink to the bottom.

Jessie Cohen/NZP

Fishing Cats *Prionailurus viverrinus*

A fishing cat sits on a muddy embankment beside a pool, gently tapping the surface of the water with its paw to imitate the movements of an insect. Lured by the ruse, a fish swims closer; the cat strikes and deftly scoops up its glistening prey.

Although this scenario unfolds every day in south and Southeast Asia, people rarely see it, because fishing cats are nocturnal and elusive. But on Asia Trail, you can be front and center when two of these beautiful felines hunt in a glass tank stocked with fish and other swimming snacks.

You'll also learn how National Zoo scientists and their colleagues in Asia are conserving fishing cats and their habitats. In Sri Lanka, for example, they are conducting the first detailed study of fishing cats in the wild. With the data they gather, they will develop a management plan to ensure that fishing cats have space to live among expanding suburbs and urban areas.

In Thailand, Zoo scientists use photographs taken by camera traps to estimate the number of fishing cats remaining in the wild. See for yourself how camera traps work and check out some of the amazing animal photos they've captured at the interactive camera trap exhibit. You might be surprised who's been caught on camera!

Get to Know Fishing Cats

The IUCN lists fishing cats as vulnerable. To build more roads and create more farmland, people drain and pollute the cats' native wetland habitats, and also hunt them for their fur.

Fishing cats are about twice the size of the average housecat.

Fishing cats can catch fish and frogs from the banks of a stream, but they will also dive into deep water and swim below the surface to catch waterfowl.

When swimming, fishing cats may use their tails as rudders.

Villagers sometimes mistake fishing cats for leopards, and kill them to protect their livestock from depredation.

The webbing on fishing cats' front paws only comes partway up each of their toes. They can scoop up fish, frogs, and other prey with their front paws.

Zoologists gave the fishing cat the species name *viverrinus* because it reminded them of the Indian civet cat (*Viverra zibetha*).

Jessie Cohen/NZP

Clouded Leopards *Neofelis nebulosa*

Asia Trail bends like a horseshoe around a large tree at the heart of the clouded leopard habitat. As you walk up the gentle slope and come closer to the tree's branches, look between the leaves—you might find the piercing eyes of a clouded leopard.

In Malaysia, this secretive cat is known as *harimau dahan*, meaning "branch tiger," because of its arboreal habits, which include leaping from limb to limb and napping on sturdy branches. On Asia Trail, children can practice their own leopard-like leaps on a Balance Branch built into the boardwalk.

Scientists know very little about clouded leopards' behavior in the wild and can only guess at their total population. They do know that poaching and habitat destruction threaten the species' long-term survival, so National Zoo scientists, along with colleagues in the U.S. and Thailand, continue to develop assisted-breeding methods to increase the number of clouded leopards in zoos.

Click through the slideshow at the clouded leopard Look Stations to learn more about National Zoo scientists' contributions to clouded leopard research and reproduction, from their work at the Zoo's Conservation and Research Center in Front Royal, Virginia—where more than 70 clouded leopards have been born since 1978—to the studies they help conduct in Thailand.

Get to Know Clouded Leopards

The IUCN lists clouded leopards as vulnerable, due to deforestation of their native habitat in south and Southeast Asia. Also, people hunt them for their beautiful pelts and for use in traditional medicines in China.

Clouded leopards are named for the cloud-shaped markings on their fur. In China, they are called "mint leopards," because their markings are thought to resemble mint leaves.

No one is certain just how arboreal clouded leopards are. They may rest in trees in the daytime, thus avoiding the terrestrial leeches found in many Asian forests, but descend to the ground at dusk to hunt and mate.

The long, sharp claws, large paws, and flexible ankle bones of clouded leopards give them such a firm grip that they can even hang upside down from tree branches.

A clouded leopard's tail is nearly as long as its body, and helps it stay balanced as it jumps from one branch to another.

Clouded leopards have the largest canine teeth of all living cats relative to their body size.

Jessie Cohen/NZP

Sloth Bears *Melursus ursinus*

You might hear Asia Trail's sloth bears before you see them. When the shaggy bears dig up insect nests with their three-inch-long claws, they become living vacuums. By closing their nostrils, they can suck up ants and termites with their long lips, making a loud "kerflump" noise in the process.

You'll also have plenty of opportunities to watch the bears in action. Through the sloth bear habitat's clear glass walls, you may see young Balawat riding on his mother's back, or male Merlin exploring waterfalls, pools, and rocky outcrops. If you're visiting at feeding time, take a seat at the Sloth Bear Amphitheater, and watch while keepers place grapes and other snacks in small openings in the glass and the bears suck the food through the other side.

The Sloth Bear Conservation Plaza highlights the important conservation efforts of people living in India and Nepal. Check out a biogas stove, which is fueled by animal dung rather than wood harvested from local forests, or read about literacy and conservation programs that empower women to save habitat in Nepal. Beautiful photography depicts life in an Indian village and shows how conservationists are working with Indian farmers to reduce overgrazing by cattle.

A large, hands-on topographic map spotlights some inspiring changes taking place in the Terai Arc, a region in the foothills of the Himalayas that stretches 620 miles along the border of Nepal and India. The Terai Arc was once an ideal home for

Get to Know Sloth Bears

The IUCN lists sloth bears as vulnerable. Agriculture, livestock, and logging infringe on their habitat, and they are hunted for use in traditional medicines. In India, some are made to perform as "dancing" bears.

Sloth bears can close their nostrils so they can suck insects through their mouths like a vacuum.

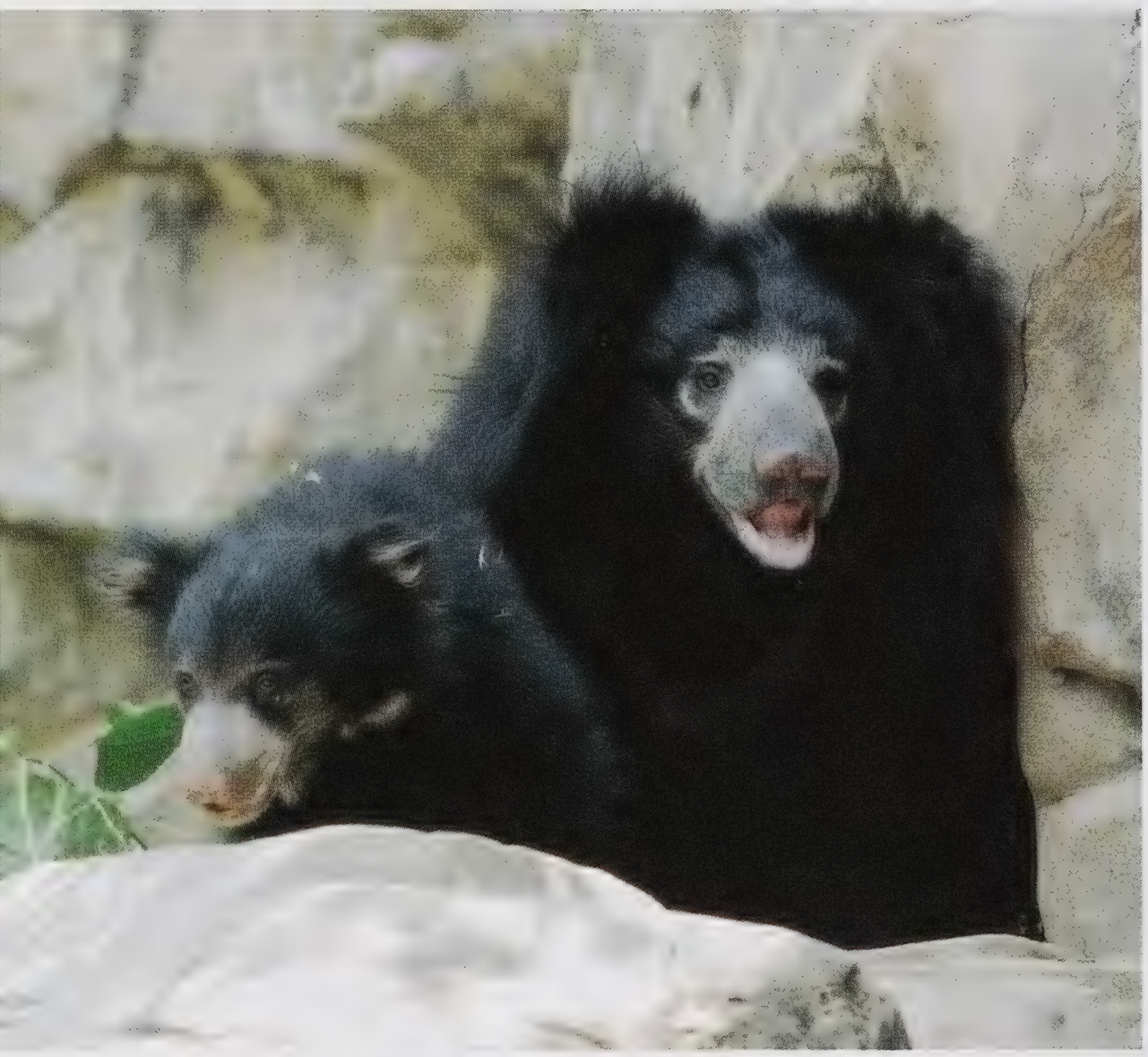
No other bear species carries its young on its back as sloth bears do.

Baloo, the lovable bear in Rudyard Kipling's *The Jungle Book*, may be modeled after a sloth bear.

Sloth bears' long, shaggy coats protect them from insect stings, and their nearly furless noses don't get gummed up by the sticky defensive secretions of termites.

Despite their name, sloth bears are not related to sloths, nor are they slow: They can easily outrun a person.

Sloth bears have three-inch-long, curved claws perfect for digging into insect nests.



Ann Batdorf/NZP

Sloth bear cub Balawat and his mother, Hana.

sloth bears and many other species. But as human populations increased and people converted forests for agriculture, the animals' habitat became fragmented. Now, conservationists are restoring patches of forest so that wildlife can travel safely between the Terai Arc's 12 protected parks.

Not everyone agrees about how to conserve wild lands and wildlife. The interactive Decision Station introduces you to some of the real-life challenges of saving sloth bears in India. Using the touch screen, try your hand at making these difficult choices, and find out how your decisions affect sloth bears and people.

National Zoo scientists are committed to sloth bear conservation despite numerous challenges, as they have been for decades. Their work began in the 1970s, when a Zoo scientist participated in the first study of sloth bears in the wild, and continues today in field studies conducted by Zoo scientists and their partners. Some of these scientists describe what motivates them at the Sloth Bear Conservation Plaza, where artifacts from their research trips are also on display.

Asia Trail Online

Visitors to the Asia Trail pages of the National Zoo/FONZ website, **www.fonz.org/asiatrail.htm**, will soon be able to hear giant panda vocalizations, watch a fishing cat fish, see giant panda cub Tai Shan's family tree, and enjoy many other engaging new features. One of these features, adapted from kiosks at the Zoo, is the interactive Decision Station, which shows the complexity of conservation choices by presenting users with a dilemma involving the balance of people and wildlife, showing videos of people with different perspectives, and asking what should be done. Fujifilm has created an interactive virtual tour, as well as an audio tour that people can download to their MP3 players and use at the Zoo. Other highlights include more animal photos, information, video and audio clips, and tips to help people plan their visit to Asia Trail.

Curiosity Stations at the Zoo will enable people to make a customized virtual visit when they get home. After choosing topics of interest and providing their email address, people will receive an email linking to a personalized website.

Decision Stations feature interviews with rangers and other real people.

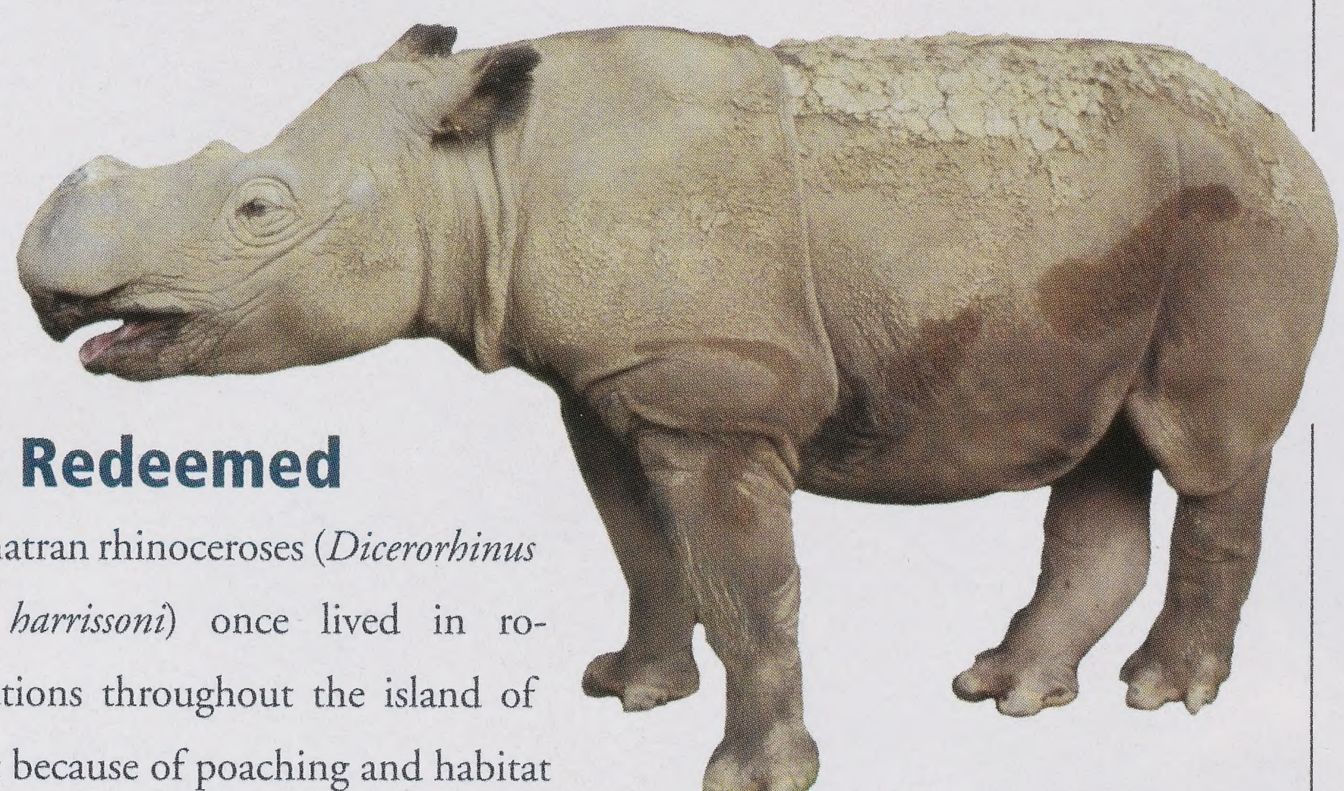
In the coming months, website visitors will discover new features, such as a panda matchmaking game, slideshows, videos of keepers, live animal cams, and interactive Built to Survive graphics, illustrating species' vital adaptations.

—Gaby Gollub

Jessie Cohen/NZP

BioAlmanac

by Shannon Lyons



Rhinos Redeemed

Borneo Sumatran rhinoceroses (*Dicerorhinus sumatrensis harrissoni*) once lived in robust populations throughout the island of Borneo. But because of poaching and habitat fragmentation, they survive only in the northeastern state of Sabah, where the estimated 30 to 70 remaining individuals are so isolated that they have few opportunities to meet and mate. Fortunately, recent discoveries in Sabah suggest that a breeding population of these shy jungle dwellers still exists. Scientists found the tracks of at least 13 of the rhinos in May 2005, and a camera trap set by scientists and conservationists captured the first photograph ever taken of a Borneo Sumatran rhino in the wild in June 2006. If protected from poachers and habitat destruction, this small but seemingly healthy group might help rejuvenate the subspecies.

What's in a Name?

With the legs and hooves of a miniature Bambi and the head of a rodent, the greater Malay mouse-deer (*Tragulus napu*) looks like the victim of a witch's spell gone awry. The male's canine teeth, long and curved like a snake's fangs, complete its mismatched appearance.

The genus name *Tragulus* means "little goat" in Greek, and the French call the six species of mouse-deer that live in Asia and another species that lives in Africa *chevrotains*, or "little goats." While these names describe physical characteristics, they are taxonomically misleading. Mouse-deer are not related to mice and merely belong to the same order—Artiodactyla, or even-toed ungulates—as deer and goats (and hippos and giraffes, too). The Indonesian word for mouse-deer is *kancil*. Several traditional Indonesian fables feature a witty kancil who delivers a moral with a self-serving twist; the character is so beloved that the Indonesian car company Perodua named one of its models after him.

The raccoon dog (*Nyctereutes procyonoides*) of Siberia, China, North Korea, and Japan is the only member of the canid family (which includes wolves, foxes, and dogs) that hibernates.

Where Do Orangutans Sleep?

Orangutans (*Pongo* spp.) are the only great apes in Asia and they spend about 90 percent of their time in trees. At night, orangutans sleep in treetop nests they make with sticks and leaves. They rarely use a nest more than once, preferring instead to build new ones each evening. Males sleep alone but females share their nests with their offspring, and mothers with small young may build as many as two or three nests per day for napping and resting. Scientists count these nests to estimate how many orangutans remain in the forests of Borneo and Sumatra despite hunting, habitat loss, and other threats.

Fact or Fiction: All Bears Hibernate

Animals hibernate to survive periods when food is scarce. Bears that live in warm climates with abundant food year-round, such as Southeast Asian sun bears (*Helarctos malayanus*), need not hibernate. Cold-climate bears that forgo hibernation include giant pandas (*Ailuropoda melanoleuca*) and male polar bears (*Ursus maritimus*). Those that do hibernate, including grizzlies (*U. arctos horribilis*) and northern black bears (*U. americanus*), retreat to sheltered dens for up to half the year, living off large reserves of fat they gained by gorging on high-energy food in autumn. Bears maintain fairly normal body temperatures and do not eat, drink, urinate, or defecate during hibernation, unlike chipmunks and other "true hibernators" that drastically lower their body temperatures and emerge periodically to feed and eliminate waste.

In Season

In late September or early October, India's southwest monsoon draws to a close and a drier season commences. The southwest monsoon usually starts in June, when moisture-laden winds from the Bay of Bengal and the Arabian Sea reach India's southernmost tip. Over the next three or four months the winds travel north toward the Himalayas, drenching some parts of India with more than 30 inches of rain in just one day. Long celebrated for its supposed healing powers and for bringing much-needed water for crops and thirsty villagers, the southwest monsoon can also be deadly: By the first week of July 2006, flooding and lightning strikes caused by the monsoon killed at least 250 people and devastated large tracts of cropland.

Sumatran rhino: Bruce Coleman Inc./ Wardene Weisser. Greater Malay mouse-deer: Bruce Coleman Inc./Mark Newman. Orangutan: www.photos.com.

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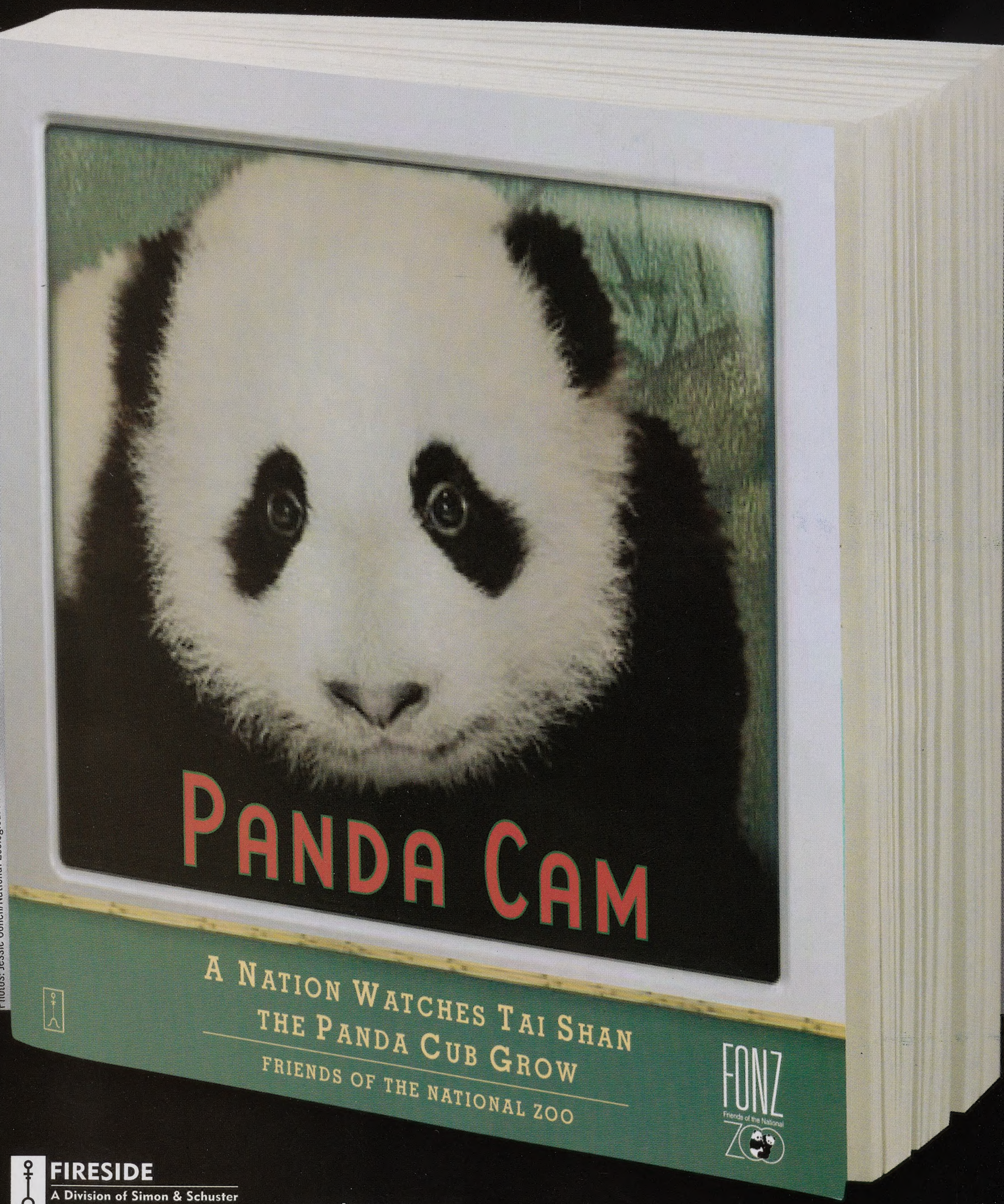
What's black and white and l♥ved all over?

You've watched his every move online. Now Tai Shan gets his close-up in a book featuring 50 unforgettable full-color photos of the panda who celebrated his first birthday on July 9th.

Photos: Jessie Cohen/National Zoological Park



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